

R E M A R K S

Claim Amendments

The amendment to claims 1 and 5 regarding "0.2% or less Cr" is supported on page 9, lines 22 to 24 of the specification.

The amendment to claims 2 and 6 is consistent with the amendments to claims 1 and 5, respectively.

A minor clerical amendment was made to claims 5 to 8 by adding "a" before "high."

Applicants' Present Claims

The present claims are directed to a high tensile cold-rolled steel sheet consisting essentially of 0.04 to 0.13% C, 0.3 to 1.2% Si, 1.0 to 3.5% Mn, 0.04% or less P, 0.01% or less S, 0.02 to 0.07% Al, 0.005% or less N, 0.2% or less Cr, by mass, and a balance of Fe and inevitable impurities; having a microstructure containing 50% or larger area percentage of ferrite and 10% or larger area percentage of martensite, and having a ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction of 0.85 to 1.5; and having a nano strength of the martensite of 8 GPa or larger (see applicants' present claim 1).

The present claims also pertain to a method for manufacturing a high tensile cold-rolled steel sheet, comprising the steps of: hot-rolling a steel slab consisting essentially of

0.04 to 0.13% C, 0.3 to 1.2% Si, 1.0 to 3.5% Mn, 0.04% or less P, 0.01% or less S, 0.02 to 0.07% Al, 0.005% or less N, 0.2% or less Cr, by mass, and a balance of Fe and inevitable impurities, into a steel sheet, followed by coiling at a coiling temperature ranging from 450°C to 650°C; cold-rolling the coiled steel sheet at a cold-rolling reduction ranging from 30 to 70%; annealing the cold-rolled steel sheet by heating to a temperature range of [the coiling temperature + the cold-rolling reduction percentage x 4.5] to [the coiling temperature + the cold-rolling reduction percentage x 5.5] (°C); and cooling the annealed steel sheet to a temperature of 340°C or below at an average cooling rate of 10°C/s or higher, thereby manufacturing a high tensile cold-rolled steel sheet having a microstructure containing 50% or larger area percentage of ferrite and 10% or larger area percentage of martensite, and having a ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction of 0.85 to 1.5; and having a nano strength of the martensite of 8 GPa or larger (see applicants' present claim 5).

The steel sheets provided by applicants' present claims are desirably used as reinforcing members of pillars and dashboards of automobiles.

Obviousness Rejection Under 35 USC 103

Claims 1 to 8 were rejected under 35 USC 103 as being unpatentable over WO 01/09396 for the reasons set forth in item

no. 5 beginning at the bottom of page 2 and continuing to the bottom of page 6 of the Office Action.

It was admitted in the Office Action that WO 01/09396 differs from the instant claim 1 because it does not specifically teach the ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction or the nano strength of the martensite.

It was admitted in the Office Action that WO 01/09396 differs from the instant claim 5, because it does not specifically teach the cold-rolling reduction range.

It was also admitted in the Office Action that WO 01/09396 differs from instant claim 5 because it does not teach the formula of the annealing temperature recited in claim 5.

It was further admitted in the Office Action that WO 01/09396 differs from instant claim 5 because it does not specifically teach the ratio of intervals of the martensite in the rolling direction to those in the sheet thickness direction or the nano strength of the martensite.

The position was taken at lines 3 to 4 in the first full paragraph on page 3 and the last sentence on page 4 of the Office Action that "The presence of 0.25% Cr and 0.002% B [in WO 01/09396] are impurity levels and therefore would not materially affect the basic and novel characteristics of the claimed invention."

Applicants respectfully disagree with the obviousness rejection for the following reasons.

USP 6,743,307 is a related family member of WO 01/09396. In USP 6,743,307, column 2, lines 33 to 35, the following is stated:

"Supported by the necessarily present Cr content, in this way a higher level of strength is achieved when compared to comparative steels of conventional compositions."

Therefore, the presence of 0.25% Cr could not be an impurity level in the steels of USP 6,743,307 (WO 01/09396).

The amount of Cr recited in applicants' present claim 1 is outside of the range of Cr disclosed in WO 01/09396.

USP 6,743,307 does not disclose the effect of Cr on the performance of an electro-deposition coating.

The importance of Cr in the amount specified in applicants' present claims is demonstrated by the disclosure on page 9, lines 24 to 26, which is reproduced as follows:

"The Cr content exceeding 0.5% by mass deteriorates the performance of electro-deposition coating which is given to the press-formed parts. Accordingly, the Cr content is preferably specified to 0.2% by mass or less."

The amount of Cr recited in applicants' present claims of "0.2% or less Cr" is substantially different from "0.25 to 1.0% Cr" as disclosed in USP 6,743,307.

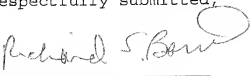
Withdrawal of the 35 USC 103 rejection is thus respectfully requested.

Reconsideration is requested. Allowance is solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

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Respectfully submitted,

  
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